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MEMORANDUM FOR: [redacted]

[redacted] first told me attached came to us from Records Center. I checked with [redacted] who had not seen it but who said he knew that the Agency had donated some money towards study that is being made, and that [redacted] probably sent the attached to us, and that he (or [redacted]) would know all background.

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Had [redacted] dig up envelope packaged rec'd in -- attached --and it came directly to us from GSA. (Did you ask Hazel to correct your name (spelling) and title?) Who will attend meeting?

B-

11 Sep 72
(DATE)

FORM NO. 1 AUG 54 101 REPLACES FORM 10-101 WHICH MAY BE USED. (47)

UNITED STATES OF AMERICA

GENERAL SERVICES ADMINISTRATION

National Archives and Records Service
Washington, DC 20408

September 6, 1972

Additional Information Regarding Informal Industry/Government Meeting to Discuss Standardization of Paper Sizes -- September 19, 1972

You have received an invitation from Mr. Harold J. Koenig, Assistant Archivist for Records Management, to be represented at a meeting in Washington on September 19, 1972. To provide some additional background information in preparation for that meeting there is enclosed:

1. Copy of The Wall Street Journal Announcements regarding Metric Legislation. The Senate Bill was S. 2483.

2. Information selected from a paper by Mr. R. J. O'Brien, Chairman of the Standards Subcommittee of the Office and Machines & Supplies Committee of ANSI. Mr. O'Brien's complete paper will be a part of the consolidated report.

3. Abstract of NBS paper on Legibility, Esthetics and Paper Size by Dr. Gerald L. Howett. Dr. Howett's paper will be a part of the report.

4. Notes selected from NBS Report 10233 -- Survey of U. S. Government Files by William K. Wilson. This study will be a part of the report.

5. Summary taken from NBS Report 10234 -- Study of Paper Sizes Annoyance Factors in Mixing of Two or More Sizes, by William K. Wilson. This also will be a part of the final report.

6. Listing of original purposes of this activity as identified as June 30, 1969 Meeting.

7. Copy of Report of June 30, 1969 Meeting for ready reference.

The Pennsylvania Avenue entrance to the National Archives Building is the proper one to use for the September 19 Meeting.

Bernard J. Taymans
Advisor, Paper Size Study

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Washington, D. C. 20014

Metric System Bill Is Approved By Senate Unit

Measure Provides a 10-Year Transition Period, Sets Up National Conversion Board

House Panel Has Not Acted

By a WALL STREET JOURNAL *Staff Reporter*

WASHINGTON — In a surprise move, the Senate Commerce Committee approved legislation calling for the nation to switch to metric measurement over a 10-year transition period.

The bill had been thought dead in both houses. The Nixon administration proposed the switch to metric last year, and hearings were held in the Senate last February. After that, nothing happened and most metric-system supporters thought the conversion proposal would remain dormant for this session.

A Senate Commerce Committee source said the bill probably will be called up for a vote by the full Senate after Labor Day. At the House Science Committee, an aide said the bill's sudden movement "may change the picture quite a bit," but that no action has been scheduled yet by the panel.

Measurement by meters, kilograms and liters is legal in the U.S. under an 1866 law, and there isn't any legal compulsion behind the customary feet, pounds and quarts units of measurement used by all but a few professions and industries.

The Senate committee bill wouldn't make metric measurement compulsory, but would set a national goal of switching "predominantly although not exclusively" to the metric system within 10 years.

After a three-year study, the Commerce Department last year proposed the decade-long transition, along with the significant recommendation that it be centrally planned and coordinated. This is the proposal's most controversial feature. The auto industry, for example, has protested that each element of the economy should be allowed to make any transition at its own pace.

The Senate committee concurred with the Commerce Department, approving creation of an 11-member National Metric Conversion Board to synchronize each major industry's switch, avoiding production of differently measured equipment that doesn't fit. The board wouldn't have coercive power. This approach is patterned after a metrication board that's supervising the current transition in Britain.

The Senate committee also decided to follow the British policy of letting the costs of metric conversion "lie where they fall." Sen. Claiborne Pell (D., R.I.), a long-time metric supporter, has proposed allowing a fast tax write-off for new equipment purchased by businessmen as part of the metric conversion, but the committee followed a Nixon administration recommendation and deleted this from the bill.

There has been little outright enthusiasm in Congress for switching to the metric system, but the Commerce Department has pushed the argument that "it's inevitable and necessary" to boost the nation's exports. The U.S. is the only major industrial nation that hasn't yet made the switch.

Wall Street Journal
August 21, 1972

Metric System Bill Is Passed by Senate; Outlook in House Bleak

By a WALL STREET JOURNAL *Staff Reporter*

WASHINGTON—The Senate passed legislation that would convert the nation to a metric measurement system over the next decade, but the measure has a bleak outlook in the House.

The Senate measure, approved by voice vote, wouldn't make use of the metric measurement compulsory, but would establish a national goal of converting "predominately although not exclusively" to the metric system within the next 10 years.

But the legislation seems likely to get bogged down in the House Science Committee. Officials said that panel doesn't currently have any plans to hold hearings when Congress reconvenes after Labor Day. Thus, there's little prospect for legislation in this session, these officials noted.

Metric measurement is legal in the U.S., but rarely used. Proponents of conversion argue that the U.S. is the only major industrial nation that isn't using the metric system and say a switch would aid U.S. exports.

INFORMATION SELECTED FROM

THE CASE FOR A STANDARD BUSINESS LETTER SIZE

by

Mr. R. S. O'Brien
Chairman X - 4 A - 7, ANSI

The American National Standards Institute Subcommittee X4-A7 scope is described as "Basic Paper Sizes." The Subcommittee is now actively considering the desirability of an ANSI standard for a business letter size.

This subject is important and timely for a number of reasons:

1. The question of the U.S. adoption of the metric system is being considered by the Congress. The prospect is that some sort of gradual changeover to the use of metric units will take place in the United States.

2. There is a widespread belief that the adoption of the metric system also means the adoption of the ISO-A paper sizes.

3. Great Britain has officially changed to the metric system and has also standardized on the ISO-A paper sizes.

4. Canada is likely to go metric with, or before, the United States. A strong campaign in support of the ISO-A sizes is being conducted in Canada.

5. The U. S. Government is concluding a study of the present 8" x 10½" government standard size. This standard has been in existence for fifty years, but there seems little reason to continue this size as a "loner."

THE ISO-A SIZES

The ISO-A sizes are also referred to as the "DIN" sizes because they were first issued by the Deutsche Industrie Normen in 1922. These sizes are based on the root 2 rectangle; that is, the sides have the proportion of 1 to 1.414. The unique property of this rectangle is that when cut in half the two halves have the same proportion as the original.

In the ISO-A series size, A-0 has an area of approximately 1 square meter with dimensions of 841mm x 1189mm (33.11" x 46.81"). This size is repeatedly halved for sizes A1, A2, to A10. The most useful business sizes in this series are:

A4	210mm c 297 mm	8.27" x 11.69"
A5	148mm x 210mm	5.83" x 8.27"
A6	105mm x 148mm	4.13" x 5.83"

SOME ISO-A SIZE PROBLEMS

The basic problem is that the "A"size system was introduced in a 19th century business environment, when all business transactions were recorded by hand. In most European countries, at that time, Federal law required that business records had to be made in page numbered bound books. This practice had been a universal system for more than two hundred years and introduced the use of "bookkeeper," "the company's books," "bookkeeping machines" into one language. It was only after World War I that loose leaf binders began to replace the bound books.

After World War I the use of manually driven typing machines for the preparation of business forms was introduced, and after World War II the computer revolution took place, so that today more business forms are written by automatic writing machines than by any other method.

Automatic writing machines include high speed computer printers, teletypewriters and tape driven typewriters. For registration and control of the paper these machines depend on registration pins that are engaged in holes punched in the paper margins. These holes are spaced at 1/2" centers in all the machines of this kind used in the world. The world-wide common unit for a character space is 1/6"x 1/10".

The "A" series of sizes does not fit either of these dimensional requirements and when automatic writing machines are used the 1922 "A" sizes must be modified.

These changes from handwriting to manually operated typing to fully automatic writing are happening in letter writing as well as forms writing. Computers are widely used for the writing of sales, payment due, and other letters where large sections of the text can be uniform in wording. New models of letter writing typewriters with automatic writing capabilities using magnetic signals are now in use.

The printing industry has also changed radically since World War I, largely due to two inventions of the 1930s, instantaneous drying, heat set inks, and on machine coating of paper. These innovations spurred the use of rotary printing machines into wider and wider areas of application. In 1920, almost all book paper was sold in sheets. By 1964, over 30% of book paper was sold in rolls; by 1970 this was about 45% and is probably over 50% today.

Business forms in 1920, with the exception of some small specialties, were all printed from sheets of paper. Today, more than 70% of all business form paper is sold in rolls.

These trends are growing and any standard to be adopted by the United States should not only consider present practices, but should attempt to anticipate the future.

PRESENT SIZE PRACTICES

The most widely used business letter sizes are:

United States	8½ x 11"
United Kingdom	8 x 10"
ISO-A	8¼ x 11-2/3"
U.S. Government	8 x 10½"

The present practices are:

Continental Europe	ISO 8¼" x 11-2/3"
United Kingdom	Since 1959, the ISO-A sizes have been the British National Standard but 1971 usage was approximately 60% 8" x 10" and 40% ISO A4
South America	8½" x 11"
British Commonwealth Countries:	
Australia	8" x 10"
New Zealand	8" x 10"
Union of South Africa	8" x 10"
Japan	7-3/4" x 10-3/4"
U.S. & Canada	8½" x 11"

Most of the emerging countries are adopting the ISO-A standards.

A fair estimate of the world's usage of business letter sizes is:

8½" x 11"	60%
8¼ x 11-2/3"	25%
Other Sizes	15%

Finally, it is necessary to consider the question of file sizes. The defacto standard correspondence file folder size is 11-3/4" x 9". The ISO-A4 size will fit in the folder, but with only .06" clearance. This is insufficient for efficient filing.

Most office desks contain one file drawer for correspondence (8½" x 11") size filing. The cost of changing this file size in the United States cannot be justified by any compensating economies.

We have identified the following advantages of the ISO-A Size system:

1. Simplification of inventories. All of the "A" sizes may be cut from one piece of paper. The orderly sequence of sizes eliminates hundreds of form sizes now in use and simplifies filing and storage.

2. Economy in reduction. Using a 50% reduction, two pages may be combined in one with no loss of space.

3. Reduction in the number of envelope sizes. There are nine ISO envelope sizes that meet all of the mail requirements in Europe. In the U.S., we use hundreds of envelope sizes.

4. The root two rectangle in the proposition of microfilm. Thus, any ISO-A size document may be copied to microfilm with no waste of space. The limited series of "A" sizes increases the efficiency of the microfilming operation because only a few reduction settings are needed.

5. As opposed to the confusing and awkward variety of ream based paper substance weights used in the U.S., the metric countries express paper weights in grams per square meter. Because the ISO-A sizes relate directly to the area of one square meter, the calculation of paper requirements is very simple.

6. Ninety percent of the nations of the world use the ISO-A sizes and the adoption of these sizes by the U.S. and Canada would make it a truly International Standard.

The first four of the advantages relate to the properties of the root two rectangle, regardless of its dimensions. Only the last two are dependent upon the A-0 size of 841 mm x 1189 mm.

The advantage of calculating paper weight requirements for estimating or ordering purposes, as listed in advantage #5, is unique to the ISO-A sizes. Using the A number as the power of two provides a direct relation to the square meter. For example, given an order for 10,000 letterheads on A-4 paper of 64 gsm: the fourth power of 2 is 16 so one sheet would weigh 1/16th of 64 or 4 grams; 1,000 sheets 4 kilograms and 10,000 sheets 40 kilograms. This was an important advantage when the A system was introduced in 1922. Calculating machines were clumsy, expensive, hand operated, and not generally available to ordering or estimating clerks. With the speed, compactness, low cost, and convenience of electronic calculators almost everyone has access to these machines and complex arithmetic calculations are made easy.

The final advantage, that of making the ISO-A truly International sizes, has the most merit and must be seriously considered. However, against the imposingly long list of countries that have adopted the ISO standard, the A-4 size letter represents only 25% of the world's usage. The U.S.A. commercial size of 8½" x 11" used in North and South America accounts for 60% of the total. The former British size of 8" x 10" is still used in Commonwealth countries like Australia, New Zealand, and the Union of South Africa. Together, with the Japanese 7-3/4" x 10-3/4" size and the U.S. Government 8" x 10½" size, these account for about 15% of the total.

The economic cost of accommodating the filing problems of the A-4 size cannot be countered with any remotely equivalent offsetting economic advantage.

The differences in the business environments of 1922 and 1972 must be considered. There is a definite and growing trend toward the automation of the letter writing operation. This is best achieved with letterheads in continuous style. Continuous forms must conform in depth with modules of line space and register pin spacing dimension. The A series of sizes must be modified for use in modern writing machines because the largest common denominator of the A sizes is 1 mm.

ABSTRACT

LEGIBILITY, ESTHETICS AND PAGE SIZE PAPER
by
Dr. Gerald L. Howett

The primary function of this report is to summarize the experimental literature on the effects of typographical variables on the legibility of printed matter. A secondary effort has been devoted to an attempt to analyze quantitatively the principles of page design, from the point of view of esthetics combined with legibility, with some intuitive consideration of other factors such as paper handling and economics. The overall purpose it to see how these two classes of psychological factors -- legibility and esthetics -- might be taken into account in considerations of the optium size of papar in the standardization of paper sizes. The typographic and related variables discussed include:

type style (face)
type size
width (length) of the printed line
separation (leading) between lines
margins
column arrangements
paragraphing
page length
color of ink and paper, and
positioning of the page relative to the line of sight.

Recommendations are made for action (including further research) to bring existing practice into closer conformity with the legibility findings. A new letter-size page, 198 x 280 mm (7 3/4 x 11") is proposed as another possibility for an international standard, with the understanding that practical factors not considered in this report may favor an existing size.

9/6/72

Notes Selected From
NBS 10233
Survey of the U. S. Government Files
by
William K. Wilson

As a part of a general study of paper sizes by National Archives and Records Service and the National Bureau of Standards, a survey was made of the sizes of paper used in communications.

Over 7,000 sheets of paper comprising over 4,500 items in file folders selected at random from the files of 24 agencies were included in the sample. It included the active files of three agencies. The major part of the sample was selected from agency records held in custody at the Washington National Records Center at Suitland, Maryland.

The objectives of this study were:

(1) to develop detailed information on the size of the message and other components of letters in relation to size of paper needed,

(2) to develop information on the sizes of paper on which various communications were made,

(3) to determine to what extent these sizes were adequate for the purpose, and

(4) to obtain a count of the contents of the files (letters, reports, forms, etc.).

In the overview of the study relating to U. S. Government Letters the following is stated:

A consideration of the proper size of paper for U. S. Government correspondence leads immediately to the following questions?

1. Is there an ideal size of paper for U. S. Government letters?

2. If so, what is the size?

3. How does one arrive at an optimum size?

4. What data are needed?

5. How does this information fit into the total communications system?

One must keep in mind that the end use of a letter is to transmit information. The size of the paper represents only one consideration. The size of the type, length of line, size of margins, general appearance of letter, and probably other factors, contribute to how well the letter functions as an instrument of communication.

The analysis of the contents of the files that were studied indicated the following:

Forms -- 30% of the bulk. The figure becomes still larger if form letters and some of the miscellaneous items are included.

Letters -- 27%, including both incoming and outgoing government letters and incoming non-government letters.

Reports -- 16%

These three fairly well defined items occupy around 75 percent of the space in the files.

Over 98 percent of U. S. Government letters are written on the 8 x 10 1/2" size; 61 percent of non-government letters were written on the 8 1/2 x 11" size. There is far more standardization of size of paper for U. S. Government correspondence than for non-government correspondence as reflected from the study of these files.

72 percent of forms are prepared on 8 x 10 1/2" paper. Forms might benefit from further standardization.

Form letters and mass communications are well standardized and represent only a small part of the files.

Reports are particularly diffuse with respect to size. The size 8 x 10 1/2" represents 34 percent and 8 1/2 x 11" represents 23 percent. Legal size represents 13 percent. The findings indicate a substantial need for sizes larger than 8 x 10 1/2" for reports. It appears that further standardization of sizes of paper for reports would be feasible and further study is needed to indicate the direction.

8 percent of the sheets in the sample were legal size. There were four legal sizes. Legal sizes are particularly annoying to handle and to file. Legal sizes should be further studied.

Eighty-six percent of a sample of 814 letters had been typed with elite type.

The message size that occurred most frequently in letters was about 700 type space units.

The 8 1/2 x 11" size paper affords about 11% more paper area, but about 20 percent more space for the message in a one-page letter than the 8 x 10 1/2" size.

The ISO A4 size, 8 1/4 x 11 3/4" provides about 15% more paper area, but about 30 percent more space for the message in a one-page letter than the 8 x 10 1/2" size.

The greatly increased message area of the 8 1/2 x 11" and the 8 1/4 x 11 3/4" sizes result in fewer two page letters than the use of the 8 x 10 1/2" size, but the use of either of the two larger sizes for letters would increase the consumption of paper by about 7 percent.

Although dollar savings on the cost of paper can be "proved" by the continued use of the 8 x 10 1/2" size for letters, this is a small part of the total picture. One-page letters are easier to handle, type, fold, file, and stuff in envelopes than multiple page letters. To the extent that a larger size paper minimizes these problems, it may result in overall savings. The

differences in cost among the various sizes of paper for one letter are negligible. Paper size is only one variable that must be kept in mind with respect to how well a letter functions as an instrument of communication.

Forms might benefit from further standardization, but the analysis of paper sizes for forms requires a special study that is beyond the scope of the present report. The amount of paper is only a small part of the picture. The efficiency with which a form serves its intended purpose and the way it fits into the total communications system are far more important than the small saving on each sheet.

With respect to possibilities for future research

An operations research approach to the selection of the proper system of paper sizes for letters, forms, reports, etc., should be useful to assist in identifying the variables and in suggesting courses of action through standardization. Special attention should be given to the potential value of adopting a system of sizes based on a width to length ratio of 1:2.

The data contained in this report were obtained from a small sample of U. S. Government files. Replicate samples would not produce profiles identical to the one developed in this report. A much larger sample, perhaps 50,000 to 100,000 sheets for a study of the content of the files, and perhaps 5,000 to 10,000 letters for an anlysis of correspondence, probably would be necessary to achieve appreciably greater precision.

Potential savings are indeed conceivable if an operations research approach is used to identify the variables and to suggest courses of action through standardization.

NATIONAL BUREAU OF STANDARDS REPORT
10234
STUDY OF PAPER SIZES
ANNOYANCE FACTORS IN MIXING OF TWO OR MORE SIZES

by
William K. Wilson

April 15, 1970

SUMMARY

A limited survey of several agencies shows that inconvenience and loss of time occur from the mixing of two or more paper sizes during routine office paper work operations. Without further study, this loss of time cannot be expressed quantitatively as an economic loss. Dissatisfaction with a particular size was not expressed, but sentiment was strong for one standard size between the U. S. Government and industry. The selection of a particular size would require further study, preferably using an operations research approach.

9/6/72

STATEMENT OF PURPOSE
June 30, 1969
PAPER SIZE PROJECT

PURPOSE

A. To accomplish economically (actual dollar savings) by increasing the efficiency and effectiveness of paperwork in the United States Government through the standardization of paper sizes, (paperwork includes all aspects relating to manufacturing, processing, recording, transmitting, storage, retrieval, etc.)

B. To consider the activities that are going on inside and outside of Government and to evaluate these in relation to the possibility of standardizing paper sizes.

C. To consider the place of the United States in world markets and to evaluate this information in relation to paper sizes.

D. To consider the status of the United States as it relates to the Metric System and to evaluate this in connection with possible present day recommendations on paper sizes.

E. To bring together current facts on technology, on legislation, on equipment, and on all activities that have a bearing on paper sizes.

F. To establish communications among various individuals, organizations and groups who are in one way or another concerned with or working on the subject of paper size standards.